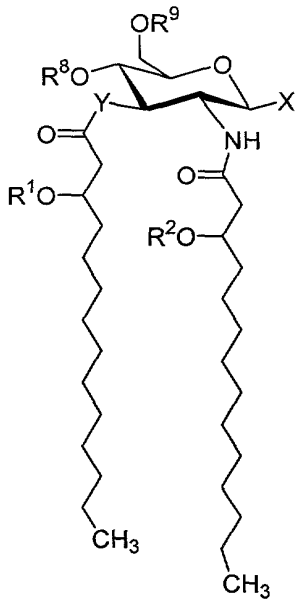
WHAT IS CLAIMED IS:

1. An immunostimulant composition comprising:

(a) at least one aminoalkyl glucosaminide phosphate (AGP); and

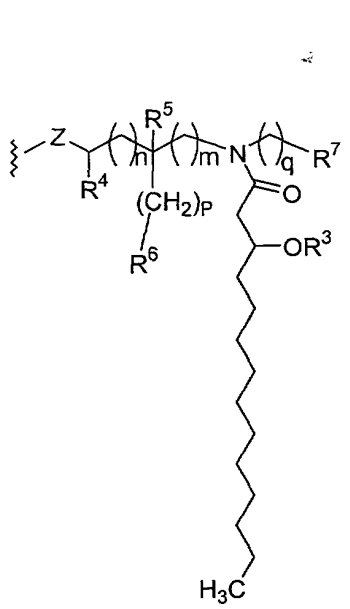
(b) at least one saponin.

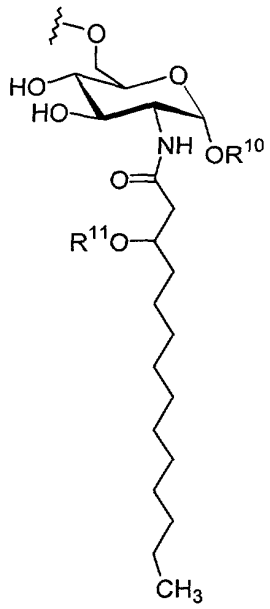
2. The composition of claim 1, wherein the AGP comprises a compound having the structure:



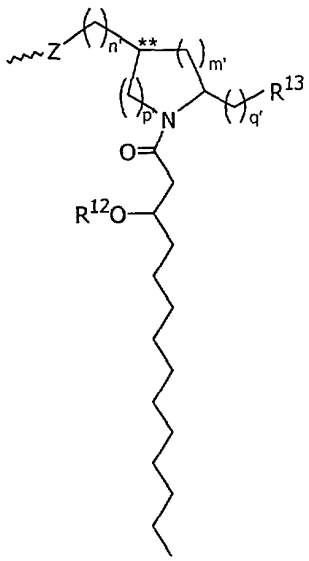
(I)

and pharmaceutically acceptable salts and derivatives thereof, wherein Y is –O- or –NH-; R^1 and R^2 are each independently selected from saturated and unsaturated (C_2-C_{24}) aliphatic acyl groups; R^8 is -H or $-PO_3R^{11}R^{12}$, wherein R^{11} and R^{12} are each independently –H or (C_1-C_4) aliphatic groups; R^9 is –H, $-CH_3$ or $-PO_3R^{13}R^{14}$, wherein R^{13} and R^{14} are each independently selected from –H and (C_1-C_4) aliphatic groups; and wherein at least one of R^8 and R^9 is a phosphorus-containing group, but R^8 and R^9 are not both phosphorus-containing groups; and X is a group selected from the formulae:





and



(Ia) (Ib) (Ic)

wherein the subscripts n, m, p, q, n', m', p' and q' are each independently an integer of from 0 to 6, provided that the sum of p' and m' is an integer from 0 to 6; R^3, R^{11}, and R^{12} are independently a saturated or unsaturated optionally substituted aliphatic (C_2-C_{24})acyl group, provided that when X is formula (Ia), one of R^1, R^2 and R^3 is optionally hydrogen; R^4 and R^5 are independently selected from H and methyl; R^6 and R^7 are independently selected from H, OH, (C_1-C_4)oxyaliphatic groups, $-PO_3H_2$, $-OPO_3H_2$, $-SO_3H$, $-OSO_3H$, $-NR^{15}R^{16}$, $-SR^{15}$, -CN, $-NO_2$, -CHO, $-CO_2R^{15}$, $-CONR^{15}R^{16}$, $-PO_3R^{15}R^{16}$, $-OPO_3R^{15}R^{16}$, $-SO_3R^{15}$ and $-OSO_3R^{15}$, wherein R^{15} and R^{16} are each independently selected from H and (C_1-C_4)aliphatic groups; R^{10} is selected from H, CH_3, $-PO_3H_2$, ω-phosphonooxy(C_2-C_{24})alkyl, and ω-carboxy(C_1-C_{24})alkyl; R^{13} is independently selected from H, OH, (C_1-C_4)oxyaliphatic groups, $-PO_3R^{17}R^{18}$, $-OPO_3R^{17}R^{18}$, $-SO_3R^{17}$, $-OSO_3R^{17}$, $-NR^{17}R^{18}$, $-SR^{17}$, -CN, $-NO_2$, -CHO, $-CO_2R^{17}$, and $-CONR^{17}R^{18}$, wherein R^{17} and R^{18} are each independently selected from H and (C_1-C_4)aliphatic groups; and Z is –O- or –S-.

3 The composition of claim 2, wherein X is a group of formula (Ia).

4. The composition of claim 2, wherein X is a group of formula (Ib).

5. The composition of claim 2, wherein X is a group of formula (Ic).

6. The composition of claim 2, wherein X is formula (Ia) and one of R^1, R^2 and R^3 is hydrogen.

7. The composition of claim 2, wherein R^1, R^2, R^3, R^{11} and R^{12} are each acyl.

8. The composition of claim 3, wherein R^1, R^2 and R^3 are each C_7-C_{16} aliphatic acyl groups.

9. The composition of claim 3, wherein R^1, R^2 and R^3 are each C_8-C_{14} aliphatic acyl groups.

10. The composition of claim 3, wherein R^1, R^2 and R^3 are each C_9-C_{14} aliphatic acyl groups.

11. The composition of claim 3, wherein R^1, R^2 and R^3 are each C_{10}-C_{14} aliphatic acyl groups.

12. The composition of claim 3, wherein R^1, R^2 and R^3 are each C_{10}-C_{14} saturated aliphatic acyl groups.

13. The composition of claim 5, wherein R^1, R^2 and R^{12} are each C_9-C_{14} aliphatic acyl groups.

14. The composition of claim 5, wherein R^1, R^2 and R^{12} are each C_{10}-C_{14} aliphatic acyl groups.

15. The composition of claim 5, wherein R^1, R^2 and R^3 are each C_{10}-C_{14} saturated aliphatic acyl groups.

16. The composition of claim 2, wherein X is oxygen.

17. The composition of claim 2, wherein R^8 is a phosphorus-containing group and R^9 is hydrogen.

18. The composition of claim 2, wherein R^8 or R^9 is a phosphorus-containing group, and R^{11} and R^{12}, or R^{13} and R^{14}, respectively, are both hydrogen.

18. The composition of claim 3, wherein the total of $n + m$ is 0, 1, or 2.

19. The composition of claim 3, wherein p and q are independemtly 0, 1 or 2.

20. The composition of claim 3, wherein R^6 is selected from hydrogen, hydroxy and carboxy.

21. The composition of claim 5, wherein n', m', p' and q' are idependently 0, 1 or 2.

22. The composition of claim 5, wherein n' is 1, m' is 2, and p' and q' are zero.

23. The composition of claim 22, wherein R^1, R^2 and R^{12} are each C_{10}-C_{14} saturated aliphatic acyl groups.

24. The composition of claim 23, wherein Y and Z are both oxygen; R^{13} is hydrogen; and R^1, R^2 and R^{12} are each C_{10} saturated aliphatic acyl groups.

25. The composition of claim 23, wherein Y and Z are both oxygen; R^{13} is hydrogen; and R^1, R^2 and R^{12} are each C_{12} saturated aliphatic acyl groups.

26. The composition of claim 23, wherein Y and Z are both oxygen; R^{13} is hydrogen; and R^1, R^2 and R^{12} are each C_{14} saturated aliphatic acyl groups.

27. The composition of claim 1, wherein the AGP is a monophosphoryl lipid A.

28. The composition of claim 3, wherein R^1, R^2 and R^3 all are *n*-$C_{13}H_{27}CO$; X and Y are both oxygen; *n, m, p,* and *q* are each zero; R^4, R^5, R^6, R^7 and R^9 are each hydrogen; and R^8 is PO_3H_2.

29. The composition of claim 3, wherein R^1, R^2 and R^3 all are *n*-$C_{11}H_{23}CO$; X and Y are both oxygen; *n, m,* and *q* are each zero; *p* is 1; R^4, R^5, R^7 and R^9 are each hydrogen; R^6 is hydroxy; and R^8 is PO_3H_2.

30. The composition of claim 1 wherein the saponin is selected from naturally obtained saponins, synthetically obtained saponins, saponin conjugates, saponin derivatives, and saponin mimetics.

31. The composition of claim 1, wherein the saponin comprises a Quillaja saponin.

32. The composition of claim 31, wherein the Quillaja saponin comprises Quil A, QS-7, QS-17, QS-18 or QS-21.

33. The composition of claim 1, wherein the saponin comprises a triterpene saponin-lipophile conjugate comprising a nonacylated or desacylated triterpene saponin that includes a 3-glucuronic acid residue; and a lipophilic moiety; wherein said saponin and said lipophilic moiety are covalently attached to one another, either directly or through a linker group, and wherein said direct attachment or attachment to said linker occurs through a covalent bond between the carboxyl carbon of said 3-glucuronic acid residue and a suitable functional group on the lipophilic residue or linker group.

34. The composition of claim 33, wherein the triterpene saponin (a) has a triterpene aglycone core structure with branched sugar chains attached to positions 3 and 28, and an aldehyde group linked or attached to position 4; and (b) is either originally non-acylated, or requires removal of an acyl or acyloyl group that is bound to a saccharide at the 28-position of the triterpene aglycone

34. The composition of claim 33, wherein said lipophilic moiety comprises one or more residues of a fatty acid, terpenoid, aliphatic amine, aliphatic alcohol, aliphatic mercapton mono- or poly- C_2-C_4 alkyleneoxy derivative of a fatty acid, mono- or poly- C_2-C_4 alkyleneoxy derivative of a fatty alcohol, glycosyl-fatty acid, glycolipid, phospholipid or a mono-, or di-acylglycerol.

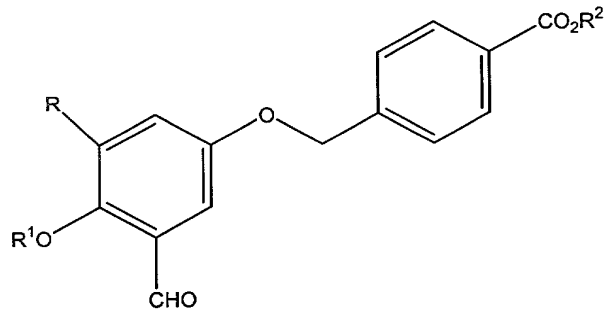
35. The composition of claim 1, wherein the saponin comprises GPI-0100.

36. The composition of claim 33, wherein said triterpene saponin has a quillaic acid or gypsogenin core structure.

37. The composition of claim 36, wherein said desacylsaponin or nonacylated saponin is selected from the group consisting of Quillaja desacylsaponin, S. jenisseensis desacylsaponin Gypsophila saponin, Saponaria saponin Acanthophyllum saponin and lucyoside P saponin.

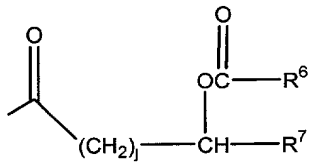
38. The composition of claim 1, wherein the saponin comprises a saponin/antigen covalent conjugate composition.

39. The composition of claim 1, wherein the saponin comprises a compound represented by the formula:



wherein, R is hydrogen or –C(O)H; R^1 is a member selected from the group consisting of hydrogen, an optionally substituted C_{1-20} aliphatic group, a saccharyl group, and a group represented by the formula $-C(O)-[C(R^3)(R^4)]_k-COOH$, wherein each R^3 and R^4 independently is a member selected from the group consisting of hydrogen and optionally substituted C_{1-10} aliphatic groups, and k is a number from 1

to 5; R^2 is a member selected from the group consisting of hydrogen, an optionally substituted $C_{1\text{-}20}$ aliphatic group, and a group represented by the formula $-(CH_2)_rCH(OH)(CH_2)_tOR^5$, wherein r and t are independently 1 or 2, and R^5 is an optionally substituted $C_{2\text{-}20}$ aliphatic group, or a group represented by the formula



wherein j is 1-5, and R^6 and R^7 are independently selected from the group consisting of hydrogen and optionally substituted $C_{1\text{-}20}$ aliphatic groups; or a pharmacologically aceptable salt thereof.

40. The composition of claim 39, wherein R^1 is a mono- or disaccharide.

41. The composition of claim 40, wherein R^1 is a glucuronic acid group.

42. The composition of claim 39, wherein R, R^1 and R^2 are hydrogens.

43. The composition of claim 39, wherein R is hydrogen; R^1 is a saccharyl group, wherein the saccharyl group is a glucuronic acid group; and R^2 is hydrogen.

44. The composition of claim 39, wherein R is hydrogen; R^1 is represented by the formula $-C(O)-[C(R^3)(R^4)]_k-COOH$ wherein R^3 and R^4 are hydrogens and k is 2; and R^2 is hydrogen.

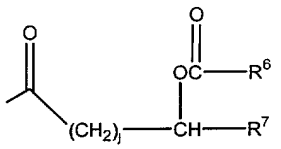
45. The composition of claim 39, wherein R is hydrogen; R^1 is a saccharyl group, wherein the saccharyl group is a glucuronic acid group; and R^2 is $(CH_2)_rCH(OH)(CH_2)_tOR^5$, wherein r and t are both 1, and R^5 is an optionally substituted $C_{2\text{-}20}$ acyl group.

46. The composition of claim 43, wherein the glucuronic acid group is a β-D-glucuronic acid group.

47. The composition of claim 45, wherein $(CH_2)_rCH(OH)(CH_2)_tOR^5$ is a 1-*O*-acyl-*sn*-glyceryl group.

48. The composition of claim 47, wherein R^5 is a member selected from the group consisting of acetyl, octanoyl, and tetradecanoyl groups.

49. The composition of claim 39, wherein R is hydrogen; R^1 is a saccharyl group, wherein the sachharyl group is a glucuronic acid group; and R^2 is a group represented by the formula:



wherein j is 1; R^6 is an optionally substituted C_{1-20} aliphatic group; and R^7 is an optionally substituted C_{1-20} aliphatic group.

50. The composition of claim 49, wherein R^7 is an optionally substituted C_{11} aliphatic group.

51. The composition of claim 1, further comprising at least one antigen.

52. The composition of claim 51, wherein the antigen is derived from the group consisting of Herpes Simplex Virus type 1, Herpes Simplex virus type 2, Human cytomegalovirus, HIV, Hepatitis A, B, C or E, Respiratory Syncytial virus, human papilloma virus, Influenza virus, Tuberculosis, Leishmaniasis, T.Cruzi, Ehrlichia, Candida, Salmonella, Neisseria, Borrelia, Chlamydia, Bordetella, Plasmodium and Toxoplasma.

53. The composition of claim 51, wherein the antigen is a human tumor antigen.

54. The composition of claim 53, wherein the tumor antigen is derived from a prostate, colon, breast, ovarian, pancreatic, brain, head and neck, melanoma, leukemia or lymphoma cancer.

55. The composition of claim 51, wherein the antigen is a self antigen.

56. The composition of claim 55, wherein the self antigen is an antigen associated with an autoimmune disease.

57. The composition of claim 52, wherein the autoimmune disease is type 1 diabetes, multiple sclerosis, myasthenia gravis, rheumatoid arthritis or psoriasis.

58. The composition of claim 1 comprising an aqueous formulation.

59. The composition of claim 58, wherein the aqueous formulation comprises one or more surfactants.

60. The composition of claim 59, wherein the aqueous formulation comprises one or more phospholipid surfactants.

61. The composition of claim 60, wherein the surfactant is selected from the group consisting of diacyl phosphatidyl glycerols, diacyl phosphatidyl cholines, diacyl phosphatidic acids, and diacyl phosphatidyl ethanolamines.

62. The composition of claim 60, wherein the surfactant is selected from the group consisting of dimyristoyl phosphatidyl glycerol (DPMG), dipalmitoyl phosphatidyl glycerol (DPPG), distearoyl phosphatidyl glycerol (DSPG), dimyristoyl phosphatidylcholine (DPMC), dipalmitoyl phosphatidylcholine (DPPC), distearoyl phosphatidylcholine (DSPC); dimyristoyl phosphatidic acid (DPMA), dipalmitoyl phosphatidic acid (DPPA), distearoyl phosphatidic acid (DSPA); dimyristoyl phosphatidyl ethanolamine (DPME), dipalmitoyl phosphatidyl ethanolamine (DPPE) and distearoyl phosphatidyl ethanolamine (DSPE).

63. The composition of claim 1, comprising an emulsion formulation.

64. The composition of claim 1, comprising a solid formulation.

65. The composition of claim 1, wherein the AGP and saponin are present in synergistically effective amounts.

66. The composition of claim 1, wherein the saponin and AGP are present in a weight ratio of saponin:AGP of from about 1000:1 to about 1:1000.

67. The composition of claim 1 further comprising a vaccine.

68. The composition of claim 2, wherein the saponin is selected from naturally obtained saponins, synthetically obtained saponins, saponin conjugates, saponin derivatives, and saponin mimetics.

69. The composition of claim 3, wherein the saponin is a quillaja saponin.

70. The composition of claim 69, wherein the saponin is QS-21.

71. The composition of claim 3, wherein the saponin is a saponin-lipophile conjugate.

72. The composition of claim 71, wherein the saponin is GPI-0100.

73. The composition of claim 4, wherein the saponin is a quillaja saponin.

74. The composition of claim 73, wherein the saponin is QS-21.

75. The composition of claim 4, wherein the saponin is a saponin-lipophile conjugate.

76. The composition of claim 75, wherein the saponin is GPI-0100.

77. The composition of claim 24, wherein the saponin is QS-21.

78. The composition of claim 24, wherein the saponin is GPI-0100.

79. The composition of claim 25, wherein the saponin is QS-21.

80. The composition of claim 25, wherein the saponin is GPI-0100.

81. The composition of claim 26, wherein the saponin is QS-21.

82. The composition of claim 26, wherein the saponin is GPI-0100.

83. The composition of claim 27, wherein the saponin is a quillaja saponin.

84. The composition of claim 83, wherein the saponin is QS-21.

85. The composition of claim 27, wherein the saponin is a saponin-lipophile conjugate.

86. The composition of claim 85, wherein the saponin is GPI-0100.

87. A method of treating a mammal suffering from or susceptible to a pathogenic infection, cancer or an autoimmune disorder comprising administering to the mammal an effective amount of a composition according to claim 1.

88 A method of treating a mammal suffering from or susceptible to a pathogenic infection, cancer or an autoimmune disorder comprising administering to the mammal an effective amount of a composition according to claim 2

89 A method of treating a mammal suffering from or susceptible to a pathogenic infection, cancer or an autoimmune disorder comprising administering to the mammal an effective amount of a composition according to claim 30.

90. A method of enhancing the immune response in an animal which comprises administering to the animal a composition according to claim 1.

91. A method of enhancing the immune response in an animal which comprises administering to the animal a composition according to claim 2.

92. A method of enhancing the immune response in an animal which comprises administering to the animal a composition according to claim 30.

93. A method of enhancing the immune response in an animal to an antigen which comprises administering to the animal a composition according to claim 1 in combination with an antigen.

94. A method of enhancing the immune response in an animal to an antigen which comprises administering to the animal a composition according to claim 2 in combination with an antigen.

95. A method of enhancing the immune response in an animal to an antigen which comprises administering to the animal a composition according to claim 30 in combination with an antigen.

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